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Mobile Ground Terminal (MGT) System Operational
 Concept (SOC)

6 JAN 1981

1. We have completed Revision A of the Mobile Ground Terminal (MGT) System Operational Concept (SOC), (Atch 2). An executive summary is at Atch 1.

2. The Air Staff never approved the original MGT SOC, dated 11 Oct 79. This revision addresses the shortcomings of the original, provides the detail required by APT-57-1 prior to full-scale engineering development, and is expected to serve as the guide for system integration.

3. Revision A has been in draft since January 1980. The initial draft Revision was issued for working level comment on 5 June 80. Also in June, Air Staff called a MGT Working Group to address questions and issues posed by Dr. Cooper, SAF/ALR. The detail in the draft revision was used to assist in this effort and the Air Staff subsequently briefed Dr. Cooper, and the OSD/C3I and OUSDRAE staffs. As a result, SAF/AL signed the Determination and Findings (DAF) to release MGT development money. Since then, the concept has been reviewed extensively by the working staffs of all concerned commands (AFEC, AFLC, SAC, and AFCC included), and we have incorporated their comments where appropriate. Throughout the review cycles, the basic concept has not been questioned, and remains unaltered.

RECOMMENDATION

4. Following CINCPAC approval, A/XP will forward the SOC to SAC, AFLC, and AFEC for coordination prior to submitting to Air Staff for approval.

ORIGINAL SIGNED

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2 Atch

1. Executive Summary

~~2. Mobile Ground Terminal (MGT)
 System Operational Concept (SOC)~~

(No record of attachment 2.)

MOBILE GROUND TERMINAL (MGT)
SYSTEM OPERATIONAL CONCEPT (SOC)

EXECUTIVE SUMMARY

1. INTRODUCTION

The Mobile Ground Terminal (MGT) System Operational Concept (SOC) was developed by HQ ADC/XPD as required by the Program Management Directive (PMD) for the Defense Support Program (DSP). The current version is Revision A. It updates the Preliminary SOC submitted to HQ AF/XOO for approval in Oct 79. The preliminary SOC was general in nature and supported the basic MGT design concept. Revision A, however, is very specific and detailed as AFR 57-1 requires it to be before full scale engineering development. Highlights of this concept follow.

2. MGT MISSION OBJECTIVES

The objective of the MGT is to enhance survivability of DSP data through the various phases of a nuclear conflict. It has specific roles during each phase (pre-, trans-, and post attack).

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3. OPERATIONAL SYSTEM

The MGT Operational System is designed to parallel that of the fixed ground station operational system.

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b1

d. User Interface.

(1) Fixed Users. The fixed ground users (NCCMC, SAC, LMCC, and ANMCC) will need a specialized interface, called the User Interface Module (UIM), to receive MGT data, perform Front-end Processing functions, and pass it on for threat processing and display.

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e. Support. The SOC identifies the MGT/JRSCT combination as the Mobile Ground Subsystem (MGS). It consists of two vehicles, the MGT itself and the JRSCT, also known as the Mobile Communications Terminal (MCT). Support consists of the facilities, equipment, and manpower needed for operations and maintenance of the MGS throughout all phases of operation.

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crosslink (1988 or later), two MOBs will be needed (one CONUS, one overseas). By 1986, the CONUS MOB will support four MGTs and the overseas MOB will support two.

b1

(4) Software Maintenance Facility (SMF). Computer software for the MGTs will be maintained by Air Force personnel at the Multi-Purpose Facility (MPF), Lowry AFB, CO. A full set of MGT computers will be positioned there for that purpose. The SMF will also support software maintenance for the SPS plus programmer and operator training for both the MGTs and SPS.

(5) Intermediate Maintenance Facility (IMF). Another array of MGT computers will be needed at the CONUS MOB to serve as an Intermediate Hardware Maintenance facility for both hemispheres. The IMF will also support intermediate maintenance for the SPS plus maintainer training for both the MGT and SPS.

(6) Depot Maintenance Facility (DMF). DMFs will be established by AFLC and the Air Force Cryptologic Depot (AFCD) as needed.

(7) Manpower.

(a) Crew Size and Composition. The MOB crew consists of seven full-time personnel and one standby as follows: two operators, three maintainers, and two security police full-time; one power production specialist on standby in the CSV. A replacement 7-man, full-time crew is also deployed in the CSV.

(b) Software Support. The main Software Support Group will be at the MPF, but three programmer/analysts will be stationed at each MOB.

(c) Supervisory and Administrative. Between 39 and 45 personnel are planned at each MOB to perform in supervisory/administrative positions over four sections: Command Section, Maintenance Section, Operations Section, and Software Support Section.

(d) Totals. Expected manpower totals are approximately:
CONUS MOB-200 personnel; overseas MOB-130 personnel; and MPF-60 personnel.

4. EMPLOYMENT.

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c. Confidence assessment will be done by the MWO utilizing direct reporting from each MGT. Summary reports generated by the MGT will not include single or multiple event reports assessed as false and will reflect whether events were threatening based on final confidence assessment.

5. DEPLOYMENT

a. Each MGT (and its associated MCT) will operate within a unique operating area not shared by others. Operating areas will be located, if possible, on government owned and/or controlled land within 30 to 150 miles from the MOB. Within each operating area, specific sites will be identified and catalogued for operational use.

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d. A Crew Support Vehicle (CSV) will deploy with each MGT/MCT pair. The CSV does not have to travel in convoy with the other vehicles, but must be within radio contact at all times. The CSV will therefore deploy within the same operating area as the MGT/MCT pair (MGS).

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6. OPERATIONAL SCENARIO

a. The MOB will supply replacement crews for as long as possible. Crews will rotate from the MOB every three or four days; rendezvous with the MGT, MCT, and CSV, and take over operations. Replaced crews return to the MOB. Operations follow the pre-developed operational deployment plans unless preempted by the DSPSC.

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7. MAINTENANCE SCENARIO

a. Field Maintenance. The MGTs and MCTs carry sufficient spares for the anticipated trans-attack period. The spares will consist of pluggable electronic modules, power supplies, and other critical electronic or mechanical assemblies. The maintenance procedure on-board the MGT/MCT includes fault isolation to a replaceable unit or small group of units, followed by a remove and replace action. Fault isolation is done with computer diagnostics and Built-In-Test Equipment (BITE). Replacement spares are provided by the MOB and arrive with new crews unless urgently needed. Replacement spares are provided by the TSVs during trans-attack if they are deployed.

b. Intermediate Maintenance. Intermediate maintenance is performed at the CONUS MOB. The IMF will be able to repair a high percentage of the defective units returned by the deployed MGTs/MCTs.

c. Depot Maintenance. Failed units not reparable at the IMF will be sent to the appropriate AFIC or AFCD depot facility for maintenance or replacement as necessary.

8. OFFICE OF PRIMARY RESPONSIBILITY (OPR). The OPR for the INI SOC is HQ ADC/XPD; Peterson AFB, CO, 80914. In coordination with SAC, AFCC, AFSC, and AFIC, HQ ADC will continue to refine the concept to provide a realistic baseline for system development, production and deployment; as well as a framework for evaluating system operational utility.